

# Hydrologic Forecast for Augusta/Elk Creek

CONDITIONS 05/17/2020

Lewis & Clark County Water Quality Protection District

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## SUMMARY

Elk Creek is a non-gauged stream, therefore regional USGS gauging stations 0608220 (Sun River below Willow Cr) 06079000 (South Fork Sun River near Augusta MT) and 06073500 (Dearborn River at Craig) are used as surrogates to evaluate the timing of spring runoff and may be used to track rising river stage in the area.

Streamflows have fallen in the past two weeks since their early season peak on May 1<sup>st</sup>. However, with mid and upper elevation snowpack at normal levels for this time of year and precipitation, significant in places, forecast for much of the upcoming week, the threat of flash-flooding for the Rocky Mountain Front area is real. The combination of spring runoff and precipitation has the potential to cause rapid rises in stream levels, and flooding is possible. Residents should be vigilant and keep abreast of weather and precipitation reports throughout the week.

From the National Weather Service:

*With snow levels expected to be above 9000-10000 feet through at least Wednesday, most of this precipitation will fall as rain on the remaining snowpack, which would lead to a significant increase in runoff. This could lead to flooding of waterways emanating from the mountains by the middle to end of the work week, especially along the Rocky Mountain Front and Central Montana mountains like the Big Belts and Little Belts. A Flood Watch may be needed for some areas. In addition, significant impacts to ranching and farming operations are also possible due to the expected heavy rain. Waterlogged soils could limit access to pastures or fields for planting.*

It is possible that segments of Elk Creek may experience unpredictable response to high-water events due to infrastructure damage and/or channel disruptions from the events of 2018 and 2019.

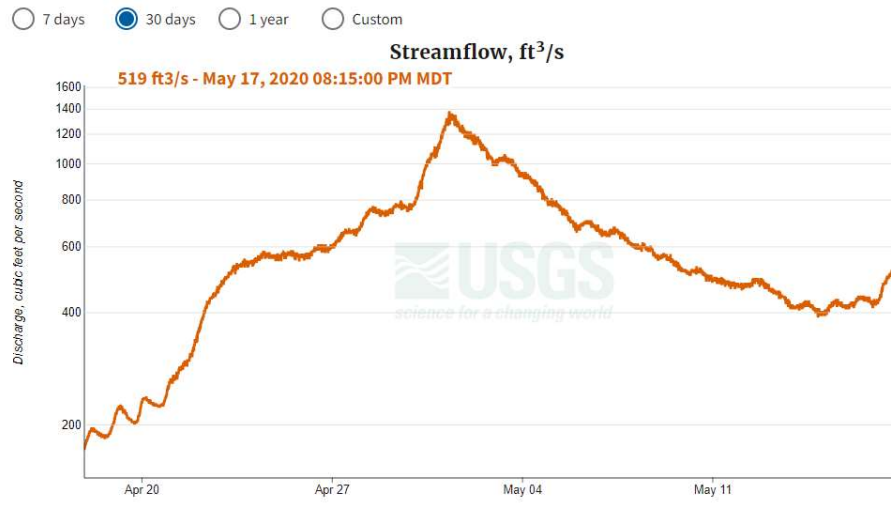
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The following data and information is used to evaluate hydrologic conditions in the Elk Creek drainage. Hydrologic response of Elk Creek is predominantly a result of three factors.

1. Surrogate **streamflow**  
<https://waterdata.usgs.gov/monitoring-location/06082200>  
<https://waterdata.usgs.gov/monitoring-location/06079000>  
<https://waterdata.usgs.gov/monitoring-location/06073500>
  2. **Snowpack** snow water equivalent (SWE) at the Wood Creek SNOTEL Station west of Augusta  
<https://www.nwrfc.noaa.gov/snow/snowplot.cgi?WODM8>
  3. Short-term Augusta 5-day weather (**precipitation and temperature**) projection from the National Weather Service  
<https://forecast.weather.gov/MapClick.php?lat=47.4927&lon=-112.3938#.XpooZUZKjGg>
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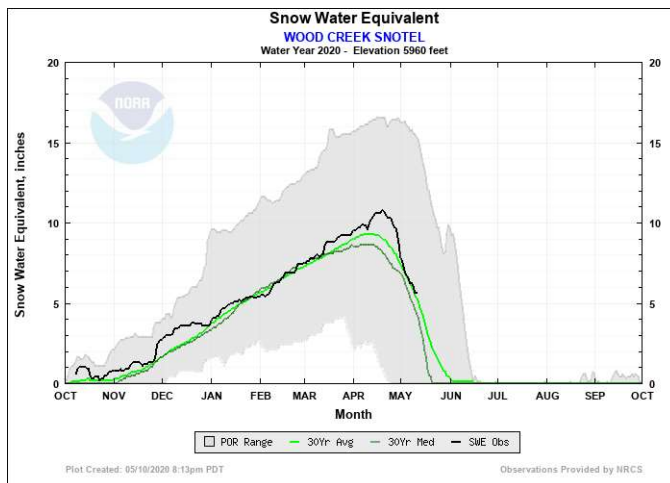
## 1. STREAMFLOW

Streamflow at the Dearborn River near Craig over the past 30 days is shown below. Note May 1<sup>st</sup> peak with warm weather. Flows have been dropping since, but increased in the past few days from recent precipitation

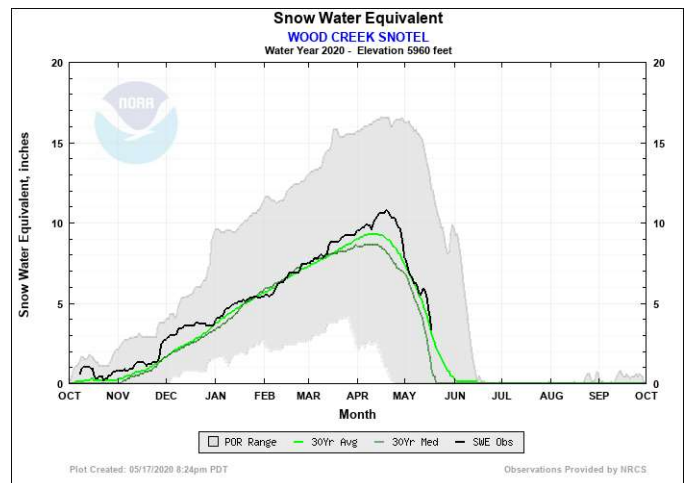


## 2. SNOWPACK (SWE)

SWE at Wood Creek is at 3.3" (down from 5.6" last week) which is very close to the 30-year average. Plots below show loss of Wood Creek snowpack (**black** line) in the past week.



SWE May 10



SWE May 17

## 3. WEATHER

Monday through next Thursday...Precipitation, which may be significant in some areas, is forecast to predominate over the next week.